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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/697,376  
Filing Date: October 30, 2003  
Appellant(s): SCHAFER ET AL.

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G. Brian Pingel  
For Appellants

**EXAMINER'S ANSWER**

This is in response to a remand from the Board of Patent Appeals and Interferences, mailed March 20, 2009. The change to the answer included herein, and verbally approved by Camille Urban, on March 30, 2009 via teleconference, is a cancelling of claim 4 which was not argued in the previously filed brief.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is incorrect with respect to claim 5. A correct statement of the status of the claims is as follows:

Claims 1- 3 and 6 -14 are rejected.

Claim 4 has been canceled by Examiner's amendment and verbally approved by Camille Urban, on March 30, 2009 via teleconference.

Claim 5 has been canceled.

**(4) Status of Amendments After Final**

There are no after final amendments.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is incomplete, however, claim 4 has been canceled by Examiner's amendment and verbally approved by Camille Urban, on March 30,2009 via teleconference.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4,070,237	Woodward	01-1978
3,773,256	Wright	11-1973

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3, 7-10, and 12 stand rejected under 35 U.S.C. 102(b) as being anticipated by Woodward (4,070,237).

Regarding claims 1 and 10, Woodward discloses an apparatus, shown in figure 3A, for retaining fluid (the fluid in this case is air, and also in some cases "a clean spray of water" Col. 5, Lns 28-33) in a liquid delivery tube comprising of, a lower portion (15) having a ball valve (18) that permits only unidirectional flow of fluids and includes a

valve chamber (surrounding 18) for housing a ball and having an inlet end (17) and an outlet end (21) being spaced apart sufficiently so that the ball is longitudinally, reciprocally movable within the chamber from a closed position at the inlet end of the chamber to an open position at the outlet end of the chamber, and an upper tubular portion (13) that has an outside diameter that is tapered to its terminus to facilitate insertion into a liquid delivery tube (external chamfer close to reference number 13, is tapered in a manner which can facilitate insertion), the tubular portion having an elongated, tapered passageway (22) that communicates with the outlet end of the valve chamber to convey fluid from the chamber to the tube and the valve chamber inlet end includes a valve seat having sidewalls that taper inwardly from the valve chamber such that the diameter of the valve seat is reduced toward the valve chamber inlet end to prevent the ball from becoming stuck therein (Col. 4, Lns. 14-17 and Col. 5, Lns. 3-10, the experiment performed indicates that valve was found to bleed a consistent amount of air, which indicates that no sticking occurred during the experiment).

Regarding claim 2, Woodward shows in Figure 3A, at least one interior rib (24) extends inward from an inside upper portion of the outlet of the valve chamber so that the ball cannot significantly obstruct the flow of fluids through the outlet of the valve chamber (Col. 4, Lns. 37-41).

Regarding claim 3, Woodward shows in Figure 3A, the inside upper portion of the valve chamber includes a plurality of the interior ribs (11) that are circumferentially spaced apart.

Regarding claim 7, Woodward shows the diameter of the passageway of the upper tubular portion tapers inwardly (22) so that the flow of fluid through the upper tubular portion is restricted as seen in Figure 3A.

Regarding claim 8, Woodward depicts that the diameter (along 22) of the upper passageway of the upper tubular portion is adjustable by trimming to increase the flow of fluid through the apparatus (the upper portion of 22 above stop 24 could be cut to increase the area for increased flow through the passageway).

Regarding claim 9, Woodward's upper tubular portion can be inserted into the bottom of the liquid delivery tube, (the upper portion is configured to be inserted into the inner diameter of a straw, where the exterior of the straw would go over the upper tubular tapered portion, the limitation is not positively recited).

Regarding claim 12, Woodward discloses the spacing between the inlet end and the outlet end of the valve chamber is of a sufficient length so that as the ball moves from the open position to the closed position, a portion of the liquid in the delivery tube is permitted to pass back through the apparatus to reduce the amount of liquid in the tube (Col. 2, Lns. 52-69).

Claims 6, 11, and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (4,070,237).

Woodward teaches the use of a ball check valve used with a fluid as noted above. Woodward also discloses the tapered seat 16 having a 50-degree inclusive angle, i.e. a 25-degree taper (Col. 5, Lns. 3-6).

Woodward arguably anticipates claim 11 as the term "less than generally 21 degrees" has not been clearly defined with respect to how far from 21 degrees would still be considered "generally" 21 degrees. Similarly, claim 14 recites "generally less than 18 degrees". If "generally" is meant to broaden the range of angles, then claims 11 and 14 would appear to be anticipated.

Woodward also recognizes that the selected angle is a results-effective variable, i.e. a variable that achieves a recognized result. In the instant case, the angle must be sufficient to prevent jamming of the ball in the seat (see column, 4, lines 14-17). Woodward also notes that numerous other factors are involved in the choice of angle taper to achieve the desired accuracy and reliability (e.g. the size of the opening, the size of the ball, the material of the ball, the pressure in the line, and orientation of the valve (see column 5, lines 3-50)).

Since the prior art recognizes the angle taper as a results-effective variable, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have chosen the valve seat sidewalls to taper inwardly at an angle less than 20.76 but greater than 14.76 degrees, or to taper inwardly at an angle less than generally 21 degrees but greater than generally 15 degrees, or to taper at an angle greater than 17 degrees but generally less than 18 degrees, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05).

Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (4,070,237) in view of Wright (3,773,256).

Woodward has taught all of the features of the present invention except that the liquid delivery tube is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached.

Wright discloses a drinking device having a liquid delivery tube that is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached as shown in figure 1.

In view of the Wright patent, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the liquid delivery tube that is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached of Wright onto the valve of Woodward, in order to provide a means to assist a child in drinking from a straw (Col. 1, Lns. 14-17).

#### **(10) Response to Argument**

##### **CLAIMS 1-3, 9-10 and 12 Rejection under 35 U.S.C. 102(b) over Woodward**

Appellants' claim 1(part b) requires the upper tubular portion have "an outside diameter that is tapered to its terminus to facilitate insertion into a liquid delivery tube".

Figure 3A clearly shows an outside diameter that is tapered to its terminus as shown near reference number 13. Appellants argue "the chamfers pointed out by the examiner are much too slight to facilitate insertion into a liquid delivery tube." One of ordinary skill in the art knows that a slight chamfer is in some cases all that is required

to facilitate insertion into a "liquid delivery" tube. Also, appellants have not claimed the degree of taper of the outside diameter. So, appellants can not rely on an unclaimed size of the taper for patentability.

Appellants argue that, "Woodward does not disclose whether its apparatus can retain fluid". The device of Woodward mainly holds a vacuum on air, which is a fluid, but also explicitly discloses in column 5, lines 28 – 33 that "a clean spray of water" may reach the ball valve. The examiner also notes that the limitation set forth in claim 1, "for retaining fluid" is an intended use recitation.

Appellant argues that, "[n]owhere in Woodward is there any description of the outside diameter of the upper portion of the bleed valve or any indication that the outside diameter of the bleed valve facilitates insertion into a liquid delivery tube." The outside diameter of Woodward, is configured to be inserted into a liquid delivery tube by means of the diametrical shape itself as well as the tapered chamfer shown in Fig. 3A.

#### CLAIM 7 Rejection under 35 U.S.C. 102(b) over Woodward

Appellants argue that Woodward does not teach an upper tubular portion that tapers inwardly to restrict flow; and that because the inlet of Woodward is smaller than the outlet, there is no restriction.

The flow path of the fluid must go around the outside of the ball therefore the flow is in some part contacting the largest part of the inner diameter of the inner chamber, this path is then reduced to a smaller path through the angled portion indicated as 22 in



figure 3A and then the flow finally exits out through the bore 21 which is smaller than the inner chamber diameter of 14.

CLAIM 8 Rejection under 35 U.S.C. 102(b) over Woodward

Appellants argue that the flow of Woodward could not be increased by adjusting a portion of Woodward, (e.g. trimming the end to increase the flow) and that as a result of trimming, a claimed element (i.e. the chamfer to facilitate insertion into a liquid delivery tube) would be removed. The limitation set forth in the claim, “the upper tubular portion is adjustable by trimming to increase flow”, merely indicates that the device be capable of being adjusted to increase flow. The device of Woodward is capable of being adjusted. Clearly the device of Woodward could be cut along a line of the tapered inner portion 22 which would increase flow through the valve, since the exiting hole would be larger and less restrictive. Therefore, Woodward meets the limitation as the device is adjustable (i.e. capable of being adjusted). Appellants are speculating what the eventual shape of device would be after the device is adjusted. However, since appellants have not claimed the actual adjustment or the configuration of the device after adjustment, any speculation on the exact shape of an unclaimed feature is not germane to the issue of patentability.

CLAIMS 6, 11 and 14 Rejection under 35 U.S.C. 103 (a) over Woodward.

Appellants argue that the angled valve seat of Woodward is not in the same range as claimed by applicant and therefore will cause the ball valve to stick or jam and not be able to freely release from the valve seat.

The claimed limitations at issue recite:

"wherein said valve seat sidewalls taper inwardly at an angle less than 20.76° but greater than 14.76°" (claim 6);

"includes a valve seat having sidewalls that taper inwardly from said valve chamber at an angle less than generally 21 degrees but greater than generally 15 degrees to prevent said ball from becoming stuck therein." (claim 11); and

"wherein said valve seat sidewalls taper inwardly at an angle generally greater than 17 degrees but generally less than 18 degrees." (claim 14)

Arguably, claims 11 and 14 are anticipated if "generally" is read broadly for 25 degrees to be "generally" 21 degrees.

Furthermore, Woodward recognizes that the selected angle is a results-effective variable, i.e. a variable that achieves a recognized result. In the instant case, the angle must be sufficient to prevent jamming of the ball in the seat (see column, 4, lines 14-17). Woodward also notes that numerous other factors are involved in the choice of angle taper to achieve the desired accuracy and reliability (e.g. the size of the opening, the size of the ball, the material of the ball, the pressure in the line, and orientation of the valve (see column 5, lines 3-50)). Thus one of ordinary skill in the art would select all of

these parameters as a simple matter of general engineering design and any single parameter viewed in a vacuum would not be an inventive feature.

Appellants provided a declaration under 37 CFR 1.132 filed 26 May 2006, which is insufficient to overcome the obviousness rejection based upon the statutory grounds for the following reasons:

Regarding the "tendency to stick", this is a statement, which amounts to an affirmation of how the claimed subject matter was intended to function. This is not germane to the issue of nonobviousness of the claimed subject matter and provides no objective evidence thereof.

The declarant is also the inventor of the present application and would not appear to have an unbiased opinion of the present invention.

Regarding the angle selection, declarant provides no objective evidence in support of alleged desirability of the recited angle range. The declaration makes broad statements that one angle is better than another but has not quantified what is meant by "better" or "best". The declaration lacks any objective evidence. What is being measured to quantify how (or if) one angle is better than another?

Furthermore, there is no evidence that the samples tested in the desired ranges, had the same surface finish (i.e. an Ra or rms measurement) taken across the angled seat mating surface area for the ball, nor is there any data for the pressure parameters at which the samples were tested, or even if they were tested at the same pressures,

nor is there any data that the samples tested were made from the same material or different materials. If declarant compared samples of different materials or under different pressures, then the "best" angle may not be better than other angles.

The declaration lacks probative value as there is simply not enough evidence to make a determination if the tests were conducted under similar conditions at the various angles. The declaration also makes no mention of many of the numerous parameters that the prior art teaches are important in making engineering design choices (e.g. material of the ball or seat, surface finish of the ball or seat, pressure difference across the valve, etc.).

CLAIM 13 Rejection under 35 U.S.C. 103 (a) over Woodward in view of Wright US 3,773,256).

Appellants argue that there is no motivation to combine Wright with Woodward because Wright "provides no further motivation to use a different valve". The motivation to combine the references is taken directly from the Wright reference in column 1, lines 14-17, where a means is provided to "assist a child in drinking from a straw." Woodward is combined with Wright, because Woodward is silent to the straw portion of the device. Appellants further argue that Wright and Woodward were "registered in the 1970's and in over twenty years, no one has combined these apparatuses." The examiner notes that any patent application drawn to this combination of features would have been rejected under similar grounds. So the lack of any such patent is not an indication of

unobviousness, it is merely indicative of the fact that patent applications were not published until recently.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/C. P./, Examiner, Art Unit 3753, 31 March 2009

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